portant in man, enters largely into the composition of the teeth in many of the lower animals. The statement advanced by Jean Jacques Rousseau, on the one hand, that man is a herbivorous animal, and by Helvetius on the other, to the effect that he is carnivorous, both seem to be refuted by the general characters of the teeth, so far as any evidence can be derived from such a source; for in this point of structure man occupies an intermediate position between the Carnivora and the Herbivora, and appears to be adapted for the consumption of both animal and vegetable substances, though doubtless life can be well preserved with a due selection and sufficient supply of either, as we shall subsequently see.

The lining of the mouth is a mucous membrane of considerable thickness, containing numerous glands, and covered with many tiers of tesselated epithelial cells, into the deep surface of which sensitive and vascular papillæ from the membrane itself project.

The movements of the lower upon the stationary upper jaw in man are effected by the muscles, exhibited in Figs. 2 and 3.

They comprise vertical, lateral, and backward and forward movements. The *depression* of the lower jaw is accomplished with considerable rapidity by the contraction of three or four small muscles—the digastric, stylo-genio, and mylo-hyoid—forming the floor of the mouth, the first-named being the principal agent in the Carnivora.

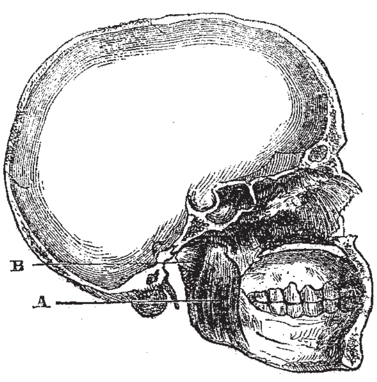

FIG. 3.—View of the internal muscles of mastication. A, *internal* pterygoid muscle; B, *external* pterygoid muscle.

From the position of the joint or pivot on which the lower jaw moves, the front teeth can be nearly twice as widely separated from one another as the back. The difference in the gape of the jaws varies in different people, and to a greater extent than might at first sight be supposed. In some measurements that I have made, I find that whilst the distance between the free borders of the front teeth does not, in some instances, exceed one inch, in others it amounts to upwards of two inches. The segment of a circle formed by the upper is usually somewhat larger than that of the lower jaw. Its *elevation*, which is a far more energetic movement, is performed by the temporal (A, Fig. 2), masseter (C, D, Fig. 2), and internal pterygoid muscles (A, Fig. 3). All these muscles are attached to the jaw between the fulcrum or condyle of the jaw, shown in Fig. 2, just in front of the external opening of the ear, and the weight to be moved or fore-part of the jaw. They therefore constitute levers of the third order; and hence, though acting promptly, are placed at a comparative disadvantage for exerting their fullest force. Still their power is immense even in man, who is again surpassed by many of the Carnivora. It is not easy to estimate it. I have endeavoured to do so, however, by ascertaining the pressure required to crush a Brazil-nut, which seems to be about the limit of the power possessed by young people with good teeth. At least very few can crush the stone of the peach. I find that a weight of about 84lb., but varying from 56lb. to 100lb. is requisite to break a Brazil-nut when placed on one of its flat sides, and this probably is not a very unfair representation of the average power of the three above-mentioned muscles. The lateral movements of the lower jaw are effected by the alternate contraction of the external pterygoids (B, Fig. 3), which are consequently seen in their highest state of development in the Ruminants. They are feeble in man. The forward and backward movements, also feeble, are due, the former to the external pterygoids, the latter to the deep portion of the masseter (C, Fig. 2), the posterior fibres of the temporal and the internal pterygoid.

Another muscle deserves to be noticed—the buccinator—which forms a considerable proportion of the thickness of the cheek, and which is an important agent in preventing the accumulation of food between the teeth and the cheek, the occurrence of which is so troublesome in some cases of paralysis. It is remarkable that all these muscles are supplied by one and the same nerve, the fifth; the last-named, however, receiving some additional motor filaments from the seventh or portiodura.

The movements of the tongue, which are under the influence of the hypoglossal nerve, are of very great importance also in aiding mastication, since its wonderful tactile sensibility enables us to feel for and thrust back between the teeth portions of food which have escaped their action. The centre for co-ordinating the various movements required for mastication appears to be situated in the medulla oblongata.

Having thus considered the mechanical process to which the food is subjected in the mouth, we shall proceed in another article to consider the chemical changes effected in it by the act of insalivation. H. POWER

NOTES

WE have more than once had to notice the liveliness recently exhibited by science at the Antipodes. This has now found expression in the issue of a monthly journal in Australia called "The Scientific Australian," a journal of industry and instruction, specially devoted to those engaged in scientific, artistic, and industrial pursuits, and to the promotion of technological education amongst the operative classes. The editor, Mr. J. S. Knight, Assoc. Inst. C.E., F.R.I.B.A., appears to have enlisted the services of the most eminent scientific men, not only in Victoria, but in the sister colonies of New South Wales, Queensland, South Australia, Western Australia, Tasmania, and New Zealand, and the articles, as a general rule, are to be signed. It is gratifying to find these signs of life in our colonies; we shall watch with interest the career of our contemporary, the first number of which was to be published at Melbourne on the 1st of the current month, and wish it every success.

AT the public sitting of the Paris Academy of Sciences, held on the 11th inst., the following prizes were awarded:—"The Astronomical Prize, Lalande foundation, to Mr. J. Watson, for the discovery of eight new asteroids in one year. The Mechanical Prize, Monthyon foundation, to M. Arson, for his experimental researches on the flow of gases in long conduits. Statistical Prize, Monthyon foundation, to M. Chenu, for his medico-chirurgical statistics of the Italian campaign of 1859-60. Prize established by the Marchioness Laplace, to M. F. A. Voisin. Trémont Prize to M. Le Roux, to aid and encourage him in the pursuit of researches on the index of refraction for certain vapours, and on the measurement of the heat developed by electric currents. Poncelet Prize to M. J. R. Mayer, of Heilbronn, for his memoirs on the mechanical theory of heat; Prize for Medicine and Surgery: a medal of the value of 3,000 francs, to MM. Legros and Onimus, for their works on the application of electricity to therapeutics; a medal of the value of 2,000 francs to M. Cyon, for a similar work. Prize for Experimental Physiology: to M. Famitzin for his researches on the influence of light on the nutrition of plants; a prize of 600 francs to MM. Tripier and Arloing for their discoveries respecting the cutaneous sensitive nerves. Prize for Medicine and Surgery, Monthyon foundation: a prize of 3,000 francs to M. Junod for his MS. work, entitled *Des médications hémospasique et aérothérapique;* two prizes of 2,000 francs to M. H. V. Luschka for his works on anatomy and to MM. Paulet and Sarazin for their treatise on topographic anatomy. Prize for the Unhealthy Arts: two prizes of 2,500 francs to M. Pimont for his *Calorifuge plastique* and to M. Charrière for his life-preservers. Bréant Prize: a prize of 5,000 francs to M. Fauvel for his works on the etiology and the prophylaxis of cholera. Cuvier Prize to Professor Ehrenberg, of Berlin. Bordin Prize, for a monograph of an invertebrate marine animal, divided between M. Marion, author of "Zoological and Anatomical Researches on the non-parasitic marine Nematoïda," and M. A. Wagner, author of a monograph of the *Ancei* of the Gulf of Naples. Jecker Prize to M. Friedel, for his researches on the compounds of silicon corresponding to the compounds of organic origin. Barbier Prize, divided between M. Mirault on the surgical occlusion of the eyelids in the treatment of double ectropion, and M. B. Stilling, for the perfecting of the operation of ovariotomy. Godard Prize to M. Hyrtl, for his researches on the genito-urinal organs of fish. Desmazières Prize, divided between M. L. Rabenhorst for his European flora of fresh-water and marine algæ, and M. A. Hofmann, for his memoir on Bacteria. Thor Prize to M. Bonnet, for his work on the edible truffle. The Mathematical Prize of 3,000 francs, the Damoiseau Prize for the theory of the satellites of Jupiter, and the Medical and Surgical Prize for the application of electricity to therapeutics have not been awarded.

THE monument to Kepler, to which we alluded some weeks since, was inaugurated on the 24th June, with great *éclat*, at his native place, the little town of Weildiestadt, in Wurtemburg. The statue is of bronze, ten feet high, in a sitting posture. In his left hand, supported on a celestial globe, he holds a parchment on which is drawn an ellipse; in his right hand is an open compass; he is looking towards the heavens. The four corners of the pedestal are adorned with statues, five feet in height, representing M. Mastling, the Professor at Tübingen who taught Kepler mathematics, Copernicus, Tycho Brahé, and Jobst Byrg, the mechanician who assisted in the construction of his optical and astronomical instruments. In the centre of the pedestal is the single word, KEPLER; on each side are bas-reliefs, representing different circumstances in his life:—Kepler, at the age of seventeen, entering the lecture-room of Professor Mastling, at Tübingen, who holds the young pupil by the hand, and explains to him the Copernican system; the discussion between Tycho Brahé and Kepler on the system of the world, in the presence of the Emperor Rudolph and of Wallenstein; and Kepler and Byrg in their workshop at Prague, making their first use of the telescope for astronomical observations. The monument is the work of the sculptor, Kreling, director of the School of Fine Arts at Nüremberg; the statues and bas-reliefs were cast and chiselled in the workshops of MM. Lenz and Hérold in the same town; the pedestal of red sandstone, from a quarry in the neighbourhood of Weildiestadt, was constructed by the architect Egle, of Stuttgart.

AT the Working Men's International Exhibition now being held at the Agricultural Hall at Islington, one of the most interesting objects is a reflecting telescope, exhibited by Mr. T. W. Bush, a baker and grocer in one of the more humble streets of Nottingham. It has specula about thirteen inches in diameter, is equatorially mounted, and presents several novel features of construction that are claimed as improvements. Mr. Bush is a self-taught astronomer, mathematician, and mechanic. He has made, without assistance, the whole of the calculations necessary for the construction of the instrument, and has constructed the models for all its parts. With the exception of the prism and some of the more bulky parts, the whole of the telescope, the brass and iron work, the cutting of the sections, the graduation of the circles and verniers, the casting, grinding, and polishing of the metal speculum, the grinding and polishing of the glass speculum, and even the making of the tools and machinery required, have been the work of his own hands. The specula have been tested by Purkiss's process and proved correct, and the telescope has been found to divide satisfactorily such double stars as η Coronæ, ζ Boötis, and ζ Herculis. Its performance on the moon and on nebulæ is also very fine, and it has been used with a magnifying power of 1,400. Unfortunately, Mr. Bush lives in a low situation close to the River Lene, to a canal, and to smoke-yielding factories, and his observations have been hindered by the state of the atmosphere in his vicinity.

ANOTHER object of interest at the same Exhibition is a display of iron, obtained by a process invented by Sir Antonio Brady, from some of that dockyard refuse irreverently described as "Seely's pigs," and which has been the subject of discussion both in Parliament and by the Press. These pigs were of different qualities, but were all largely contaminated with phosphorus and sulphur, and were supposed to be of little or no value. The presence of phosphorus renders iron brittle when it is hot, the presence of sulphur renders it brittle when it is cold. The pigs containing both were worth in the market about 2*l.* 5*s.* per ton. By Sir Antonio's process the sulphur and the phosphorus can be extracted at a cost of about 35*s.* per ton, and the residual iron is superb. It bears any and every test. One of the pieces exhibited had been beaten cold to the thinness of writing paper at one end, drawn to a point at the other, and then twisted by hand eight turns in an inch at a single heating. Massive bars had been beaten cold until the surfaces on each side of the bend came into perfect contact, and a plate six inches wide and half-an-inch thick had been beaten till its edges were in contact, the flat surface remaining horizontal. In neither case were there any traces of a flaw either at the convexity of the curve, where the metal was stretched, or at the concavity, where it was compressed. Holes in a thick plate had been enlarged by driving cones into them, and, in a word, the iron had been knocked about in every possible way. At a very low estimate it is worth 14*l.* per ton, and as there is plenty of the raw material to be had, the profit of the invention seems likely to be great.

WE regret to have to announce the death, at the Villa Pisani, near Lucca, of A. H. Haliday, A.M., of Carnmoney, Co. Antrim, which event occurred on the morning of the 13th July. Mr. Haliday entered Trinity College, Dublin, in 1822, at the age of 15, and graduated five years afterwards as a gold medalist. Shortly after he was called to the bar; but he never practised. He was High Sheriff of Antrim in 1843. As an entomologist his name will always rank with those of his friends, Curtis, Sichel, Westwood, Dohrn, and Walker, while his quiet and retiring manners, and his great scholarship endeared him to a large circle of friends.

WE regret to have to announce the death of the distinguished Anglo-Saxon scholar, Mr. Benjamin Thorpe, which took place on Tuesday last, the 19th inst. Mr. Thorpe was in his eighty-eighth year.

A REPORT which has recently appeared in the papers about Dr. Livingstone, is referred to by Sir Roderick Murchison in a letter to the *Times.* The statement (communicated by Sir Thomas Maclear, late Astronomer Royal at the Cape of Good Hope) was that one Mr. Anderson, commanding a vessel bound from Zanzibar to the United States, had informed Sir Thomas, on or before the 14th of March, that Dr. Kirk, the consular agent at Zanzibar, had informed him that he had had a recent letter from Dr. Livingstone, who was quite well and about to proceed northwards. Sir Thomas Maclear had indeed (the president of the Geographical Society writes) "communicated the same to me; but I at once saw that the story was false, for I had in my possession a letter from Dr. Kirk, of two months' later date than the 14th of March, in which he could give me no information whatever respecting the great traveller. Since then I have again heard from Dr. Kirk at Zanzibar. I have for some time, and in concluding the geographical session, announced to all concerned that for at least eight months we did not expect to hear any definite [news respecting Dr. Livingstone, inasmuch as the supplies and carriers to be sent to him and the answers to letters could not be obtained for a long period. I allude to those supplies which were obtained from Her Majesty's Government, and which only left England a few weeks ago."

We cull this note from the *Pall Mall* and commend it to Mr. Lowe:—"To scientific English ears still tingling from Mr. Lowe's famous declaration as to Government aid to science, part of the proceedings in the Corps Législatif on Thursday last must have been very tantalising. Chapter 29 of the Budget contained an item of 800*l.* to assist Captain Gustave Lambert's expedition for the discovery of the North Pole. M. Stephen Liégeard moved that the grant should be 4,000*l.*, and with the help of a few words from M. Picard his amendment was carried. To be sure it was the day before war was declared. M. Liégeard pressed a good many points into a brief speech. Since 1818 it appears there have been forty-two expeditions in search of this famous mathematical entity, all of which have failed. The three modes of search now urged are—that of Captain Sherard Osborn, by sledges over the frozen ocean (but, says M. Liégeard, what was thought to be a crust of ice is an open sea); the proposal of Augustus Petermann, of Gotha, to follow the route between Spitzbergen and Nova Zembla; and Captain Lambert's, to try the passage through Behring's Straits, which Cook would have done, "had he not fallen under the hatchet of the savages of the Sandwich Islands." It appears further that in the polar region, so fatal to explorers, "there are rich products to conquer—whale oil, fossil ivory, gold, copper, coal, and everything else that 800,000,000 of still unexplored polar hectares can conceal." Captain Lambert has held 200 meetings on this subject, and collected 16,000*l.*, besides subscriptions from chambers of commerce, learned societies, the Emperor (2,000*l.*), and others. The exploring vessel, the *Boréal*, is ready; Captain Lambert, "an intelligent man, full of faith and courage, with a constitution of iron," will leave Paris on the 1st of February next, and in the month of August, 1871, so M. Liégeard says, he will—perhaps to the cry of Ohe! Lambert—"plant the French flag on the prolongation of the terrestrial axis." As for Captain Lambert, we do not wish to damp his courage or rust his constitution, but Voltaire wrote a curious prophetic sentence on the 30th of June, 1760, in a letter to Thiriot;—"Il vaut mieux attendre tout du temps en France que d'aller chercher l'ennui et le malheur sous le pôle."

At a meeting of the Council of the Society of Arts, held on the 8th inst., M. de Lesseps received from the Prince of Wales the Albert gold medal for "services rendered to arts, manufactures, and commerce by the realisation of the Suez Canal."

The testimonial to Professor Morris was presented on Thursday last by Sir R. I. Murchison in the rooms of the Geological Society, Somerset House.

L'Abbe Moigno makes an appeal in *Les Mondes* on behalf of the Niépce de Saint-Victor subscription, which at present hardly exceeds 400 francs; the widow is in great distress and wants the means for educating her two sons. As his inventions were of equal importance to French and English photographers, it seems fitting that England should bear her share in recognising his services. We shall be happy to receive subscriptions.

The editorial chair of the *British Medical Journal* is about to become vacant. Candidates are to forward their application to the President of the Council, W. D. Husband, Esq., York, on or before the 30th inst.

In reference to the recent appointment of Dr. A. R. Simpson to his late uncle's chair of midwifery in the University of Edinburgh, we have received a card with the following statements:—(1) That he had never given a course of lectures on midwifery, or on any other subject; (2) That he had never had a pupil (in the proper sense of the word); (3) That he had never held an hospital appointment; (4) That he had never sent in a single testimonial of his fitness for the chair to which he had been appointed; (5) That he had never written or published any paper that attracted considerable notice. The correctness of these facts being assumed, we can well understand the indignation of the faculty in London at the appointment, especially as one of the most eminent practitioners of this branch of surgery, Dr. Matthews Duncan, was a candidate. The time seems to have arrived when the appointment to Professorships in Scotch Universities should be placed in more competent hands than the Town Council. At the recent election the appointment rested with seven electors, four of them members of the Town Council, three men of distinguished literary and scientific position. The three latter voted for Dr. Duncan, the four baillies for Dr. Simpson, thus carrying the election by a majority of one.

M. Ch. Le Maout calls attention in two recent numbers of *Cosmos*, to the popular belief that constant firing of guns has a tendency to bring down a heavy fall of rain, a belief which appears to be supported by the experience of the last Austro-Prussian war, the siege of Antwerp, and the battle of Solferino. M. Le Maout suggests that a series of experiments to test the soundness of the theory should be tried at the fortifications of Cherbourg, and at Brest, under opposite hygrometrical conditions, in the one case during a moist south, in the other during a dry east wind.

The Acclimatisation Gardens in the Bois de Boulogne have just received from Java a fine female Orang, three years old, and larger than any that has hitherto been brought to Europe. It is described as extremely docile, and possessed of such a strong sense of propriety as to wash its bust, arms, and shoulders with soap and water whenever it feels to need it. It is allowed a walk every morning in the gardens, when it displays great activity in climbing to the top of the tallest trees. Its height when standing upright is about that of a child five years old.

The Government of Nicaragua is trying to develop the waters of the Lake of Nejapa, which are reported to be efficacious in syphilitic affections of the system. The official report on the specimens sent to Paris states that the water is turbid, and contains a quantity of matter in suspension, having the smell of rotten eggs, due to sulphuretted hydrogen. The taste is alkaline. Such is the condition of the specimens in Paris, but in its natural situation the water is inoffensive in odour. The present analysis is therefore considered as capable of modification. The qualitative analysis gives us *bases*, magnesia, soda, potass, lime, iron, *acids*, sulphuric, hydrochloric, carbonic. The quantitative analysis states that 500 grains evaporated gave a residuum of 4·15 grains, which in treatment left, as the contents of each 500 grains of water

Bicarbonate of soda	1·90
" potass	2·40
Sulphate of magnesia	0·55
Chloride of sodium	0·05
Sulphurets of calcium, iron, &c.	1·25

Although the analysis admits of correction with better specimens, it places the Nejapa water in the alkaline class with those of Vichy and Vals.

MR. G. H. HURLBUT, an American, has been appointed engineer to the Government of the United States of Columbia at a salary of 480*l.* per annum.

A LARGE public swimming-bath is proposed at Calcutta, and meets with support.

IN Bolivia there is great excitement in consequence of the discovery of rich silver mines in the Sierra del Limon Verde, fifteen miles from the small settlement of Calama, and seventy-five miles from the shore, in the maritime prefecture of Cobija. In a short time 150 mining licenses had been taken out at the prefecture, and there was a great rush from Cobija.

THE Queensland Acclimatisation Society have sent a parcel of seeds to the Peruvian Government. These have been placed in the Lima Botanic Garden, but are said tobe in bad condition. The Peruvian Government has communicated its thanks to H. B. M. Minister, and has directed a corresponding gift to be sent to the Queensland Society. The transaction has had a very good effect.

ANOTHER coal district has been discovered in India by Mr. W. T. Blanford, F.G.S., in the bed of the Hasdo river, just below the village of Korba, in the Bilaspore district. Mr. Blanford is of opinion that the seam is favourable for working, and that it surpasses the Chanda coal, and is in portions equal to that of Raneegunge.

IRON has been rediscovered in Gwalior in large quantities. It was formerly worked, but abandoned on account of the scarcity of fuel.

AT Chicholi in the Central Provinces of India, a vein of silver has been discovered yielding on assay 9oz. 19dwts. 6grs. of silver to the ton of ore.

THE Observing Astronomical Society entered upon the second year of its existence on July 1st. The recent election of officers for the ensuing year has resulted tn the re-election of the former president, treasurer, and secretary and committee. The Rev. R. E. Hooppell, M.A., L.L.D., F.R.A.S., is the president; Mr. William F. Denning, the treasurer and secretary; and the following are the members of the committee: Messrs. S. P. Barkas, F.G.S., ; James Cook, A. W. Blacklock, M.B., H. Michell, Whitley, and Albert P. Holden. The society numbers forty-six members, and was formed for the purpose of aiding the spread of practical astronomy.

THE most recently published part of Martius's "Flora Brasiliensis" is an important one, comprising the ferns of Brazil (orders *Cyatheaceæ* and *Polypodiaceæ*) by Mr. J. G. Baker of the Kew Herbarium. Mr. Baker makes about 250 species; it is to be regretted that at the same time M. Fée had been working at Brazilian ferns from the very same materials in his *Cryptogamie vasculaire du Brésil*, which we have just received; and, following out the practice too much in vogue among Continental botanists, had made a distinct species of almost every slightly different form, thus enormously multiplying their number; his names will claim priority of publication over Mr. Baker's by a few months. The part is illustrated by fifty splendid plates, twenty of them nature-printed by Ettingshausen of Vienna, the remainder representing details of structure and fructification of every sub-genus, large plates of fifteen new and interesting species, and sections of trunks of the arborescent kinds. The *Hymenophyllaceæ*, *Gleicheniaceæ*, and other small orders by Sturm have been published some years; the *Isoetaceæ* and *Equisetaceæ*, by A. Braun, to be published very shortly, comprising only a small number of species, will complete the volume.

THE preparations for the New York Industrial Exhibition are making rapid progress, but it is not expected that it will be pened before the spring of 1872.

THE HARVEIAN ORATION

THE following extracts from Dr. Gull's Harveian oration, delivered at the Royal College of Physicians, on June 24th, form a fitting sequel to the researches of Dr. H. C. Bastian, which we reccently published, on the Spontaneous Generation of Living Things :—

"If it is ascertained beyond all doubt that, in respect of its materials, a living body contains no more than it has received; that, however strange and mysterious its organs and their functions, the warp and woof are of substances with which we are acquainted under simpler conditions, cannot the same be maintained of the forces it exhibits? . . . . It may be objected that there is lurking a kind of *petitio principii* in the supposed relations of simpler forces to their higher forms; that for the conversion of the former into the latter it is necessary to postulate material conditions of a certain kind, and that for the organic conversion we must begin with a living body or its germ; that the boast of the physiologist is like the boast of Archimedes. If he wanted a πο͂υ sτῶ, they require germs or ova and a living body. But it is clear that such an objection has no weight as in favour of a vital force which is not material, since it is abundantly proved that, whatever be the conditions required, they do not generate any power, but only vary the form of it. They who maintain the hypothesis of a separate vital force, independent of the ordinary forces of nature, and which has no essential relation to them, do, by the very terms of the hypothesis, assume that the phenomena in living things are out of the proper range of science, and they consign us to a perpetual mental inactivity and ignorance in that region of knowledge in which above all others man is interested. . . . . An hypothesis, like that of a separate vital principle, which demands so much, which stops inquiry at once, making progress impossible, by removing the steps by which it could ascend, should at least have the highest sanction of our intellect. . . . The dogma 'omne vivum ex ovo,' for the truth of which Harvey so justly contended against the fanciful notions of his age, cannot perhaps be now maintained in its integrity. Whether, to use an expression of that day, living things are ever produced automatically—that is, *de novo*—through putrefaction or otherwise, is, like the question of the limitation or universality of the germ power, still a matter upon which opinion is divided; and as it is my duty on this occasion to exhort you to investigate nature by way of experiment, I must ask you not readily to accept negative conclusions which impose limits where none may really exist. . . . The time is passing in which the human mind can remain satisfied to rest under the fetters it has imposed upon itself, or to cherish its own phantasms, as if its very existence depended upon them. 'Man knows only what he has observed of the course of nature' is the notorious dictum of science, showing the limit and the mode of the acquirement of our knowledge: the limit as wide as nature itself; and the mode is but readiness to be taught. Notwithstanding, therefore, the adverse decision of schools and dogmas, science still occupies itself with the possibilities of occasional automatic generation. And that it should be so, let it not raise antagonism in the minds of those whose pursuits (inquiries) lie in another direction, since the infinity of nature may well include facts which at first seem to be antagonistic. . . . We have lately been rather blamed for not gratefully accepting the germ theory of disease; but to this college the theory is not new, and, I think I may add, has not been proved to be true. It will be in the remembrance of many present that in the year 1849 a theory was put forth that epidemic cholera was due to fungi and their germs. Peculiar bodies, it was said, had been found in the rice-water evacuations, and also in the air and drinking waters of the infected localities. It was confidently asserted that we had substantial facts in support of the theory, and that it fulfilled the conditions required of being both true and sufficient. This college thought the subject of such moment that a sub-committee was formed from the Cholera Committee of that day for its investigation. The drinking water of infected places was examined, the air of rooms in which cholera patients were dying was condensed, that it might afford whatever floated in it for examination; dust was collected from cobwebs, window-frames, books, surfaces of exposed food, and every imaginable place, to try it for cholera germs. . . . The supposed germs, when really germs (for many shapes had been included in the supposed direful growth), were found to be spores of known harmless fungi and confervæ, of which, if even the startling